

Practitioner's Docket No. MPI00-133M**IN THE CLAIMS:**

Please kindly amend claims 53, 56, 57 and 60. This listing of claims will replace all prior versions, and listings, of claims in the application:

STATUS OF THE CLAIMS:

1-52 (Canceled)

53. (Presently amended) An isolated nucleic acid selected from the group consisting of:

- a. a nucleic acid comprising the nucleotide sequence of SEQ ID NO:1 or nucleotides 7-4545 of SEQ ID NO:1;
- b. a nucleic acid comprising the nucleotide sequence of the cDNA insert of the plasmid deposited with the ATCC as Accession Number PTA-1836 or a portion thereof, comprising the coding region;
- c. a nucleic acid which encodes a fragment of a polypeptide comprising the amino acid sequence of SEQ ID NO:2, wherein said fragment comprises at least 500 contiguous amino acids of SEQ ID NO:2 and has MEKK1 activity;
- ~~d. an nucleic acid which has at least 95% nucleotide sequence identity with the entire length of the nucleotide sequence of SEQ ID NO:1 or entire length of the nucleotides 7-4545 of SEQ ID NO:1, and wherein said nucleic acid encodes for a protein having MEKK1 activity;~~
- ~~d.~~ e. a nucleic acid which has at least 90% nucleotide sequence identity with the entire length of the nucleotide sequence of SEQ ID NO:1, wherein said nucleic acid comprises nucleotide residues 1 to 64 of SEQ ID NO:1 and wherein said nucleic acid encodes for a protein having MEKK1 activity;
- ~~e.~~ f. a nucleic acid which has at least 90% nucleotide sequence identity with the entire length of the nucleotide sequence of the insert of the plasmid deposited with the ATCC as Accession Number PTA-1836, wherein said nucleic acid comprises nucleotide residues 1 to 64 of SEQ ID NO:1 and wherein said nucleic acid encodes for a protein having MEKK1 activity;
- ~~f.~~ g. a nucleic acid comprising the nucleotide sequence which encodes a polypeptide comprising the amino acid sequence of SEQ ID NO:2 or the amino acid sequence encoded by the cDNA insert of the plasmid deposited with ATCC as Accession Number PTA-1836;
- ~~g.~~ h. a nucleic acid encoding a MEKK1 allele variant, wherein said MEKK1 allele variant comprises an amino acid sequence, having at least 90% amino acid sequence identity

(Page 2 of 7)

Practitioner's Docket No. MPI00-133M

with the entire length of SEQ ID NO:2, wherein said nucleic acid encodes for amino acid residues 1 to 20 of SEQ ID NO:2, and wherein said ~~allele~~ variant has MEKK1 activity; and

- h. ~~f.~~ a nucleic acid encoding a MEKK1 ~~allele~~ variant, wherein said MEKK1 variant comprises an amino acid sequence having at least ~~98%~~^{97%} amino acid sequence identity with the entire length of SEQ ID NO:2 and wherein said ~~allele~~ variant has MEKK1 activity.

54. (Previously presented) The isolated nucleic acid of claim 53, wherein said nucleic acid further comprises a detectable label.
55. (Previously presented) The isolated nucleic acid of claim 54, wherein said detectable label is selected from the group consisting of a chemiluminescent, fluorescent, radioactive, and colorimetric label.
56. (Presently amended) An isolated vector selected from the group consisting of:
- a. a vector comprising a recombinant nucleic acid comprising the nucleotide sequence of SEQ ID NO: 1, or nucleotides 7-4545 of SEQ ID NO:1;
 - b. a vector comprising a recombinant nucleic acid comprising the nucleotide sequence of the cDNA insert of the plasmid deposited with the ATCC as Accession Number PTA-1836 or a portion thereof comprising the coding region;
 - c. a vector comprising a recombinant nucleic acid which encodes a fragment of a polypeptide comprising the amino acid sequence of SEQ ID NO:2, wherein said fragment comprises at least 500 contiguous amino acids of SEQ ID NO:2 and has MEKK1 activity;
 - ~~d. a vector comprising a recombinant nucleic acid which has at least 95% nucleotide sequence identity with the entire length of the nucleotide sequence of SEQ ID NO:1 or entire length of the nucleotides 7-4545 of SEQ ID NO:1, and wherein said nucleic acid encodes for a protein having MEKK1 activity;~~
 - d. ~~e.~~ a vector comprising a recombinant nucleic acid which has at least 90% nucleotide sequence identity with the entire length of the nucleotide sequence of SEQ ID NO:1, wherein said nucleic acid comprises nucleotide residues 1 to 64 of SEQ ID NO:1 and wherein said nucleic acid encodes for a protein having MEKK1 activity;
 - e. ~~f.~~ a vector comprising a recombinant nucleic acid which has at least 90% nucleotide sequence identity with the entire length of the nucleotide sequence of the insert of the plasmid deposited with the ATCC as Accession Number PTA-1836, wherein said nucleic acid comprises nucleotide residues 1 to 64 of SEQ ID NO:1 and wherein said nucleic acid encodes for a protein having MEKK1 activity;

Practitioner's Docket No. MPI00-133M

- ~~f.~~ g.—a vector comprising a recombinant nucleic acid comprising the nucleotide sequence which encodes a polypeptide comprising the amino acid sequence of SEQ ID NO:2 or the amino acid sequence encoded by the cDNA insert of the plasmid deposited with ATCC as Accession Number PTA-1836;
 - ~~g.~~ h.—a vector comprising a recombinant nucleic acid encoding a MEKK1 ~~allele~~ variant, wherein said MEKK1 ~~allele~~ variant comprises an amino acid sequence, having at least 90% amino acid sequence identity with the entire length of SEQ ID NO:2, wherein said nucleic acid encodes for amino acid residues 1 to 20 of SEQ ID NO:2, and wherein said ~~allele~~ variant has MEKK1 activity; and
 - ~~h.~~ i.—a vector comprising a recombinant nucleic acid encoding a MEKK1 ~~allele~~ variant, wherein said MEKK1 variant comprises an amino acid sequence having at least ~~98%~~97% amino acid sequence identity with entire length of SEQ ID NO:2 and wherein said ~~allele~~ variant has MEKK1 activity.
57. (Presently amended) A host cell selected from the group consisting of:
- a. a host cell comprising a recombinant nucleic acid comprising the nucleotide sequence of SEQ ID NO:1, or nucleotides 7-4545 of SEQ ID NO:1;
 - b. a host cell comprising a recombinant nucleic acid comprising the nucleotide sequence of the cDNA insert of the plasmid deposited with the ATCC as Accession Number PTA-1836 or a portion thereof comprising the coding region;
 - c. a host cell comprising a recombinant nucleic acid which encodes a fragment of a polypeptide comprising the amino acid sequence of SEQ ID NO:2, wherein said fragment comprises at least 500 contiguous amino acids of SEQ ID NO:2 and has MEKK1 activity;
 - ~~d.~~ e.—a host cell comprising a recombinant nucleic acid which has at least 95% nucleotide sequence identity with the entire length of the nucleotide sequence of SEQ ID NO:1 or nucleotides 7-4545 of SEQ ID NO:1, and wherein said nucleic acid encodes for a protein having MEKK1 activity;
 - ~~d.~~ e.—a host cell comprising a recombinant nucleic acid which has at least 90% nucleotide sequence identity with the entire length of the nucleotide sequence of SEQ ID NO:1, wherein said nucleic acid comprises nucleotide residues 1 to 64 of SEQ ID NO:1 and wherein said nucleic acid encodes for a protein having MEKK1 activity;
 - ~~e.~~ f. a host cell comprising a recombinant nucleic acid which has at least 90% nucleotide sequence identity with the entire length of the nucleotide sequence of the insert of the plasmid deposited with the ATCC as Accession Number PTA-1836, wherein said nucleic

Practitioner's Docket No. MPI00-133M

acid comprises nucleotide residues 1 to 64 of SEQ ID NO:1 and wherein said nucleic acid encodes for a protein having MEKK1 activity;

- f. ~~g.~~ a host cell comprising a recombinant nucleic acid comprising the nucleotide sequence which encodes a polypeptide comprising the amino acid sequence of SEQ ID NO:2 or the amino acid sequence encoded by the cDNA insert of the plasmid deposited with ATCC as Accession Number PTA-1836;
- g. ~~h.~~ a host cell comprising a recombinant nucleic acid encoding a MEKK1 ~~allele~~ variant, wherein said MEKK1 ~~allele~~ variant comprises an amino acid sequence, having at least 90% amino acid sequence identity with entire length of SEQ ID NO:2, wherein said nucleic acid encodes amino acid residues 1 to 20 of SEQ ID NO:2, and wherein said ~~allele~~ variant has MEKK1 activity; and
- h. ~~i.~~ a host cell comprising a recombinant nucleic acid encoding a MEKK1 ~~allele~~ variant, wherein said MEKK1 variant comprises ~~a sequence,~~ an amino acid sequence having at least ~~98%~~97% amino acid sequence identity with entire length of SEQ ID NO:2 and wherein said ~~allele~~ variant has MEKK1 activity;

wherein said recombinant nucleic acid is operatively linked to an expression control element.

- 58. (Previously presented) The host cell of claim 57, wherein said host cell is a prokaryotic cell or a eukaryotic cell.
- 59. (Previously presented) The host cell of claim 58, wherein said eukaryotic cell is a mammalian cell.
- 60. (Presently amended) A method for producing a MEKK1 polypeptide ~~selected from the group consisting of:~~ a. comprising maintaining a host cell under conditions suitable for expression to produce the polypeptide, wherein said host cell comprises a recombinant nucleic acid selected from the group consisting of:

 - a. a nucleic acid comprising the nucleotide sequence of SEQ ID NO:1 or nucleotides 7-4545 of SEQ ID NO:1; and
 - b. ~~maintaining a host cell under conditions suitable for expression to produce the polypeptide, wherein said host cell comprises a recombinant~~ a nucleic acid comprising a fragment of SEQ ID NO:1, wherein said fragment encodes a polypeptide comprising at least 500 contiguous amino acids of SEQ ID NO:2 and has MEKK1 activity.
- 61. (Previously presented) The isolated nucleic acid molecule of claim 53, which is selected from the group consisting of:

 - a. A nucleic acid molecule which encodes a polypeptide comprising the amino acid sequence of SEQ ID NO:2, or the amino acid sequence encoded by the cDNA insert of the plasmid deposited with the ATCC as Accession Number PTA-1835; and

Practitioner's Docket No. MPI00-133M

- b. A nucleic acid comprising the nucleotide sequence of SEQ ID NO:1 or the cDNA insert of the plasmid deposited with the ATCC as Accession Number PTA-1836.
62. (Previously presented) A vector comprising the nucleic acid molecule of claim 61.
63. (Previously presented) A host cell that contains the vector of claim 62.
64. (Previously presented) The host cell of claim 63, wherein the host cell is a mammalian host cell.
65. (Previously presented) The nucleic acid molecule of claim 54 further comprising a nucleic acid sequence encoding a heterologous polypeptide.
66. (Previously presented) A vector comprising the nucleic acid molecule of claim 65.
67. (Previously presented) A host cell that contains the vector of claim 66.
68. (Previously presented) The host cell of claim 67, wherein the host cell is a mammalian host cell.
69. (Previously presented) The nucleic acid molecule of claim 61 further comprising a nucleic acid sequence encoding a heterologous polypeptide.
70. (Previously presented) A vector comprising the nucleic acid molecule of claim 69.
71. (Previously presented) A host cell that contains the vector of claim 70.
72. (Previously presented) The host cell of claim 41, wherein the host cell is a mammalian host cell.